EAST AFRICAN STANDARD

Textured soya protein products – Specification

EAST AFRICAN COMMUNITY

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

In order to achieve this objective, the Community established an East African Standards Committee mandated to develop and issue East African Standards.

The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the private sectors and consumer organizations. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the procedures of the Community.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

CD/T/98/2012 was prepared by Technical Committee EAS/TC 014, Cereal and pulses.
Introduction

Soya products are becoming a main stream part of regional dietary items. The benefit associated with the products includes among others the richness in protein supply. This is great benefit especially as an alternative protein source. However, it is important to note that soya has naturally high level of anti-nutritional properties related to trypsin inhibitor and tannins. The manufacturers advised to apply appropriate processing technologies to reduce these anti-nutrient properties to acceptable safe levels for human consumption.

Textured Soya Protein (TSP), also known as Textured Vegetable Protein (TVP) is an easy-to-use soya food variedly made from soya protein flour, defatted soya flour, soya concentrates or isolates. The soya is then texturized through an extrusion process and formed into granules or chunks of varying sizes. Textured soya protein products commonly resemble meat in structure and appearance when hydrated.

This East African Standard is prepared to ensure safety and quality of textured soya protein products for human consumption.
Textured Soya protein products – Specification

1 Scope

This Draft East African Standard specifies requirements and methods of sampling and test for textured soya protein products intended for human consumption.

2 Normative references

The following referenced documents are indispensable for the application of this document. The latest edition of the referenced document (including any amendments) applies.

EAS 38, Labelling of pre-packaged foods — Specification

EAS 39, Hygiene in the food and drink manufacturing industry: Code of practice

EAS 103, General standard for food additives

CAC/GL 1, General guidelines on claims

CAC/GL 2, Guidelines on nutrition labelling

CAC/GL 23, Guidelines for use of nutrition and health claims

CODEXSTAN 193, Codex general standards for contaminants and toxins in food and feed

ISO 24557, Pulses – Determination of moisture content – Air oven

ISO 11085, Cereals, cereals-based products and animal feeding stuffs -- Determination of crude fat and total fat content by the Randall extraction method

ISO 24333, Cereals and cereal products— Sampling

ISO 16050, Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products — High-performance liquid chromatographic method

ISO 5498, Agricultural food products – Determination of crude fibre content –general method

ISO 7218, Microbiology of food and animal feeding stuffs — General requirements and guidance for microbiological examinations

ISO 6887-1, Microbiology of food and animal feeding stuffs — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination — Part 1: General rules for the preparation of the initial suspension and decimal dilutions
ISO 6887-4, Microbiology of food and animal feeding stuffs — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination — Part 4: Specific rules for the preparation of products other than milk and milk products, meat and meat products, and fish and fishery products

ISO 4833, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of microorganisms — Colony-count technique at 30 ºC

ISO 6579, Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp

ISO 21527-2, Microbiology of food and animal feedstuffs — Horizontal method for the enumeration of yeasts and moulds — Part 2: Colony count technique in products with water activity less than or equal to 0.95

ISO 7251: Microbiology of food and animal feeding stuffs — Horizontal method for the detection and enumeration of presumptive Escherichia coli — Most probable number technique

ISO 2171, Cereals, pulses and by-products — Determination of ash yield by incineration

FDEAS 762:2011 Dry Soybeans – Specification

CAC/GL 4, General Guidelines for the utilization of vegetable protein products (VPP) in foods

ISO 20483, Determination of the nitrogen content and calculation of the crude protein content. Kjeldahl method

EAS/CD/T/97, Soya protein products – Specification

EAS/CD/T/95, Edible full fat Soya flour – Specification

3 Terms and definitions

For the purposes of this East African standard, the following terms and definitions shall apply:

3.1 Soya bean;
Whole mature dry bean of *Glycine max* (L) Merr varieties

3.2 Soya protein product (SPP);
Soya Protein Products (SPP) are foods produced by removing or decreasing certain major non-protein constituents (water, oil, carbohydrates) from soya beans or edible full fat soya flour in a manner that achieves high protein products with different protein content that include Soya protein flour / Defatted Soya Protein flour (SPF or DSF), Soya Protein Concentrates (SPC), and Soya Protein Isolates (SPI)

3.3 Textured soya protein product
is a food made from soya protein flour/defatted soya flour, soya concentrates or isolates through an extrusion process forming textured chunks or granules.

4 Quality requirements

4.1 Raw material
The following raw materials complying with EAS/CD/T/97 shall be used either singly or in combination:

a) Defatted soya protein flour or Soya protein flour (DSF or SPF); or
b) Soya protein concentrate (SPC); or

c) Soya protein isolate (SPI).

### 4.2 Optional Ingredients

Texturized soya protein products may contain among others the following ingredients complying with relevant East African standards and CODEX Standard.

a) Salt

b) Carbohydrates, including Sugars,

c) edible oils

d) Minerals and vitamins

e) Herbs and spices

f) Other protein products

### 4.3 General requirements

#### 4.3.1 Textured soya protein products shall

a) have taste and odour characteristic of product and any approved food additives used

b) be free from rancidity and mustiness,

c) free from foreign matter.

Soya protein products shall conform to the requirements in Table

### 4.4 Specific requirements

Textured soya protein shall also meet the requirements specified in Table 1.

#### Table 1 Requirement for textured soya protein products

<table>
<thead>
<tr>
<th>S/n</th>
<th>Characteristic</th>
<th>Textured Soya Protein product</th>
<th>Test methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Moisture %m/m, max.</td>
<td>10.0</td>
<td>ISO 24557</td>
</tr>
<tr>
<td>II.</td>
<td>Protein (N x 6.25 dry basis) % m/m, min</td>
<td>40</td>
<td>ISO 20483</td>
</tr>
<tr>
<td>III.</td>
<td>Soya oil (fats on dry basis) % m/m, max.</td>
<td>1.0</td>
<td>ISO 11085</td>
</tr>
<tr>
<td>IV.</td>
<td>Total ash % m/m, max.</td>
<td>8.0</td>
<td>ISO 2171</td>
</tr>
<tr>
<td>V.</td>
<td>Crude fibre % m/m, max.</td>
<td>6.0</td>
<td>ISO 5498</td>
</tr>
</tbody>
</table>
5 Hygiene

5.1 The Textured soya protein products shall be prepared under good hygienic practices as stipulated in EAS 39

5.2 Textured soya protein products shall be free from objectionable matter and shall be free from pathogenic micro-organisms, substances originating from micro-organisms or any other deleterious substances in amounts which may constitute a health hazard.

5.3 Textured soya protein products shall comply with microbiological requirements in Table 2

<table>
<thead>
<tr>
<th>S/n</th>
<th>Microorganism</th>
<th>Maximum limit</th>
<th>Method of test</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td><em>E. coli</em>, MPN/g</td>
<td>Not detected</td>
<td>ISO 7251</td>
</tr>
<tr>
<td>II.</td>
<td><em>Salmonella spp</em> per 25g</td>
<td>Absent</td>
<td>ISO 6579</td>
</tr>
<tr>
<td>III.</td>
<td>Yeast and moulds, cfu/g</td>
<td>$10^3$</td>
<td>ISO 21527-1</td>
</tr>
</tbody>
</table>

6 Contaminants

6.1 Pesticide residues

Textured soya protein products shall comply with those maximum pesticide residue limits established by CODEX Alimentarius commission for similar commodities.

Note: Where the use of certain pesticide is prohibited by some partner states, it shall be notified to all other partner states accordingly.

6.2 Other contaminants

The maximum content of lead (Pb) in textured soya protein products when determined in accordance with the method described in AOAC 972.25 shall not exceed 0.2 mg/kg. The product shall not contain other heavy metal contaminants in amounts which may represent a hazard to health.

6.3 Aflatoxins

The maximum content of aflatoxins in textured soya protein products when determined in accordance with the method described in ISO 16050 shall not exceed 5 µg/kg (ppb) for aflatoxin B<sub>1</sub> and 10 µg/kg for total aflatoxins.

7 Packaging

7.1 Textured soya protein products shall be packaged in food grade material which guarantees the safety and integrity of the product.
7.2 The fill of each package shall comply with weights and measures legislation and legal metrology of the Partner State

7.3 Each package shall be securely sealed

8 Labelling

In addition to the requirements in EAS 38, each package of textured soya protein products shall be legibly and indelibly marked with the following:

a) The name of the product shall be “Textured soya protein product”
b) Declaration of protein content
c) Brand name/trade name;
d) The name and physical address of the manufacturer;
e) Lot identification/ batch/code number
f) Net weight in metric units;
g) List of ingredients in descending order
h) A list of any additives used;
i) Date of manufacture;
j) Country of origin;
k) Storage conditions;
l) Expiry date
m) Language shall be English. Additional official language may be used.
n) Statement “Food for human”

9 Nutritional claim

Textured soya protein products, may have claims on protein content and its source. Such claims when declared shall conform to Codex Alimentarius Guidelines for claims (CAC/GL 1) and Guidelines for use of nutrition and health claims (CAC/GL 23);

10 Methods of sampling

Methods of sampling of textured soya protein products shall be in accordance with ISO 13690
Annex A
(normative)

Sampling of textured soya proteins

A.1 General requirements for sampling

A.1.1 In drawing, preparing, sorting and handling samples the following precautions shall be observed.

A.1.2 Sampling equipment shall be clean and dry when used.

A.1.3 Samples shall be collected in a protected place not exposed to damp air, dust or soot.

A.1.4 Precautions shall be taken to protect samples and containers from adventitious contamination.

A.1.5 The samples shall be placed in clean containers, odourless and dry containers. The sample containers shall be of such a size that they are almost completely filled by the sample.

A.1.6 Each container shall be sealed air tight after filling and marked with full details of sampling, batch or code number, name of the manufacturer and other important particulars of the consignment.

A.1.7 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

A.1.8 Sampling shall be done by a person agreed to between the purchaser and the vendor.

A.2 Scale of sampling

A.2.1 Lot: All the packages in a single consignment belonging to the same batch of the manufacture shall constitute a lot.

A.2.1.1 Samples shall be tested from each lot for ascertaining conformity of the material to the requirements of the specification.

A.2.2 The number of containers to be tested from a lot shall depend on the size of the lot and shall be in accordance with Table

<table>
<thead>
<tr>
<th>Lot size (Number of packages in a lot)</th>
<th>Sample Size (number of packages to be selected)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50</td>
<td>3</td>
</tr>
<tr>
<td>51 to 150</td>
<td>5</td>
</tr>
<tr>
<td>151 to 500</td>
<td>8</td>
</tr>
<tr>
<td>501 to 3000</td>
<td>13</td>
</tr>
<tr>
<td>Above 3000</td>
<td>20</td>
</tr>
</tbody>
</table>

A.2.3 The packages to be selected for sampling shall be chosen at random from the lot.
A.3 Test for conformity

A.3.1 The selected packages shall be opened and sampled under sterile conditions for microbiological tests (see clause 5.1.1).

A.3.2 Each of the selected opened packages shall be examined separately for appearance and other general requirements (see clause 4.1.2)

A.3.3 The contents of the selected and opened packages shall then be mixed to obtain a composite sample to be tested for chemical and contaminant tests (see clause 4.1.4 and 6.1)

A.4 Criteria for Conformity

A.4.1 The lot shall be declared conforming to this specification if all the tested parameters conform to the requirements of this specification.